
Calibrated forceps model of spinal cord compression injury.

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Public Summary:

Compression injuries of the murine spinal cord are valuable animal models for the study of spinal cord injury (SCI) and spinal regenerative therapy. The calibrated forceps model of compression injury is a convenient, low cost, and very reproducible animal model for SCI. We used a pair of modified forceps in accordance with the method published by Plemel et al. (2008) to laterally compress the spinal cord to a distance of 0.35 mm. In this video, we will demonstrate a dorsal laminectomy to expose the spinal cord, followed by compression of the spinal cord with the modified forceps. In the video, we will also address issues related to the care of paraplegic laboratory animals. This injury model produces mice that exhibit impairment in sensation, as well as impaired hindlimb locomotor function. Furthermore, this method of injury produces consistent aberrations in the pathology of the SCI, as determined by immunohistochemical methods. After watching this video, viewers should be able to determine the necessary supplies and methods for producing SCI of various severities in the mouse for studies on SCI and/or treatments designed to mitigate impairment after injury.

Scientific Abstract:

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